

## CLAIMS

- 1) Lock assembly for sliding aluminium door/window frames applicable to a series of frame profiles which in the region where the door/window panel shuts incorporate a vertically extending protruding part (3) of the profile of the frame (2) which is introduced into a frontal opening (7) of vertically extending profile part (1) which consists of two parallel walls (1a, 1b) and ends to another rear opening (8) into which the glass or shutter door/window panel is attached, characterized by that it comprises:
- A hooking mechanism for the engagement of a hook into a suitably shaped recession of a facing part which is automatically activated taking the position of engagement when the sliding door/window panel shuts, said vertically extending part (3) of the frame profile (2) bearing said frontal opening (7) in between the parallel walls (1a, 1b) of said vertically extending profile part (1) and being also deactivated automatically taking a disengagement position of said hook from said recession in said facing part when the sliding door/window panel opens and the said vertically extending part (3) bearing the suitably shaped said facing part recession is displaced through said frontal opening (7) of said profile (1), where such hooking mechanism features:
- At least one oblong hook profile (21) containing a flat surface (22) with recessions (22a, 22b) on either side thereof for seating/capturing a spring (20), a centre (27) for rotatable connection of the profile, a terminal hooking arm (24) into said

suitably shaped recession of the facing part, a terminal arm (26) for immobilizing said hooking arm (24) in the locked position and a sliding/rotating arm (25) which being adjacent to the frontal surface of said suitable facing part activates a rotation of a certain length of arc of said oblong hook profile (21), either in the direction of engagement of said hooking arm (24) into said recession of the facing part when the sliding door/window panel shuts or in the direction of disengagement of said hooking arm (24) from said recession of the facing part, when the sliding door/window panel opens, and

- At least one vertically extending flat surface protruding at right angles from the surface of at least one of said parallel walls (1a, 1b) of the profile (1) at a length corresponding to the length of said oblong hook profile (21) and bearing a terminal shaping of a centre for the rotatable connection of said oblong hook profile (21), and

A locking mechanism of said hooking arm (24) of at least one of said oblong hook profiles (21) inside said suitably shaped recession of the facing part, which contains a locking tongue (33) which when being activated via said locking mechanism, performs a rotation of a certain arc length and immobilizes said oblong hook profile (21) at a position in which said hooking arm (24) locks within said suitably shaped recession of the facing part, when it touches upon a terminal surface (26a) of said immobilization arm (26) as it protrudes via an

opening (32) at the surface separating chamber (4) of the profile (1) wherein said hooking mechanism is installed from chamber (5) of the profile (1) wherein said locking mechanism is installed.

5 2) Lock assembly for sliding aluminium door/window frames applicable to a series of frame profiles which in the region where the door/window panel shuts incorporate a vertically extending protruding part (3) of the profile of the frame (2) which is introduced into a frontal opening (7) of vertically extending profile part (1) which consists of two parallel walls (1a, 1b) and ends to another rear opening (8) into which the glass or shutter door/window panel is attached, characterized by that it comprises:

15 A hooking mechanism for hooking into a suitably shaped recession of a facing part which is automatically activated taking a position of engagement when the sliding door/window panel shuts, said vertically extending part (3) of the frame profile (2) bearing said suitably shaped facing part recession being introduced through said frontal opening (7) in between the parallel walls (1a, 1b) of said vertically extending profile part (1) and is also deactivated automatically taking a position of disengagement of said hook from said facing part recession when the sliding door/window panel opens and said vertically extending part (3) bearing the suitably shaped said recession of the facing part is displaced through said frontal opening (7) of said profile (1), wherein said hooking mechanism features:

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- 5                   - An oblong hook profile (21) which features a centre (27) for rotatable connection of the profile, a terminal hooking arm (24) onto said suitably shaped recession of the facing part and an arm consisting of two parts (25a, 26a) which form a right angle, wherein inside the arm part (25a) a surface (22) is provided with recessions (22a, 22b) on
- 10                   either side thereof, said recessions (22a, 22b) constituting basements for seating of a spring (20), where the two parts of the arm (25a, 26a) form an immobilization arm (26a) of said hooking
- 15                   arm (24) in a locked position and a sliding/rotating arm (25a) which, when touching upon said frontal surface of said suitable facing part, activates a rotation of a certain arc length of said
- 20                   oblong hook profile (21), either in the direction of engagement of said hooking arm (24) with said recession of the facing part when the sliding door/window panel shuts or in the direction of
- 25                   disengagement of said hooking arm (24) from said recession of the facing part when the sliding door/window panel opens, and
- 30                   - At least one vertically extending flat surface protruding at right angles from the surface of at least one of said parallel walls (1a, 1b) of the profile (1) at a length corresponding to the length of said oblong hook profile (21)
- 35                   and bearing a terminal shaping of a

centre for the rotatable connection of said oblong hook profile (21), and

A locking mechanism of said hooking arm (24) of at least one of said oblong hook profiles (21) inside said suitably shaped recession of the facing part which contains a reciprocating button body (50) fitted into the chamber (5) of the profile (1) at this one of the walls of the pair of parallel walls (1a, 1b) of the profile (1) which is located opposite to the position of rotatable connection of said oblong hook profile (21) so that when it touches upon said arm (25a - 26a) or upon the rear ending (39) of the arm (26a), the button body (5a) captures said oblong hook profile (21) at the locked position with the hooking arm (24) inside said suitably shaped recession of the facing part.

- 3) Lock for sliding aluminium door/window panels according to the above claims 1 or 2, where the surface that bears a terminal shaping of a centre for rotatable connection of said oblong hook profile (21) is a surface (29) that extends vertically onto the wall (1a) and/or (1b) of said profile (1), said surface being an extension of the wall (1a) and/or (1b) and ending at a terminal shaping of a cylindrical shaft (31) for the reception of said oblong hook profile (21).
- 4) Lock for sliding aluminium door/window panels according to the above claims 1 or 2, wherein the surface that bears a terminal shaping of a centre for rotatable connection of said oblong hook profile (21) is a surface of an independent profile (48) in which a flat surface (49) extending vertically to it, bears a terminal shaping of a cylindrical shaft (41) for the reception of said

oblong hook profile (21) and is connected with an angular part (42a, 42b) to the wall (1a) and/or (1b) on one hand and to the surface (59) in between said chambers (4, 5) of said profile (1) on the other hand, respectively.

- 5) Lock for sliding aluminium door/window panels according to the above claims 1-4, wherein the rotatable connection of said oblong hook profile (21) onto the vertically extending flat surface of the parallel walls (1a, 1b) of the profile (1) is selectively effected either:

. By assembly of the cylindrical shaft protruding from the wall (1a and/or 1b) of the profile (1) or the cylindrical shaft (41) of the independent profile (48) to a respective in diameter cylindrical reception groove (27a) of said oblong hook profile, or

. By assembly of a cylindrical shaft (27b) of said oblong hook profile (21) onto a respective cylindrical reception frame (31a or 41a) of the wall (1a) and/or (1b) of said profile (1) or the independent profile (48) respectively.

- 6) Lock for sliding aluminium door/window panels according to the above claims 1-5, wherein said vertically protruding extending part (3) of the frame profile (2) bears at least one vertically extending groove (30a) between the terminal frontal surface (30) and the body of said part (3), where said groove (30a) receives said hooking arm (24) of an oblong hook profile (21) mounted onto one of the parallel walls (1a, 1b) of the said profile (1) of the sliding door/window panel.

- 7) Lock for sliding aluminium door/window panels according to the above claims 1-6, where a suitably shaped recession of facing part (40a) for single-sided

hooking or a pair of suitably shaped recessions of facing part (40a, 40b) for two-sided hooking are shaped at the end of an independent profile (43) which is attached externally to the surface of said protruding vertically extending part (3) of the frame profile (2).

8) Lock for sliding aluminium door/windows door/window panels according to the above claim 1, wherein said protruding vertically extending part (3) of the frame profile (2) bears a pair of recessions (30a, 30b) on either side thereof, said recessions (30a, 30b) being adapted for the receipt of respective said hooking arms (24) of a pair of oblong hook profiles (21) fitted on either side, one in each of the parallel walls (1a, 1b) of said profile (1) of the sliding door/window panel, wherein each one of the oblong hook profiles (21) is connected to each one of the walls (1a, 1b) either:

- Into protrusions of the walls that end to a terminal cylindrical shaped shaft (31), or
- Into a terminal cylindrical shaft shaping (41) to vertically extending surfaces of independent profiles (48) on either side, connected to the walls (1a, 1b) and to the surface (59) in between said chambers (4, 5) of the profile (1) via angular joints (42a, 42b), or
- Into terminal cylindrical shaft shaping (101) on either side of vertically extending surfaces of an independent profile (108) which has a rectangular shape and is attached onto surface (105) on the one hand and onto the surface in between said chambers (4, 5) of the profile (1) and via opposite parallel surfaces

(102) to the opposite parallel walls (1a, 1b) of the profile (1) on the other hand.

9) Lock for sliding aluminium door/window panels according to the above claims 1 and 3-8, wherein said  
5 locking mechanism of said hooking arm (24) of at least one oblong hook profile (21) inside respectively at least one of said suitably shaped facing part recessions, contains:

10       • A Main body of internal cover plug means (60) which is fitted onto an opening of the profile (1) in the region of the chamber (5) and contains a rectangular cavity (83) which is covered by a plastic cover (76) which features  
15       a central elevated part (77) and on either side of it the same-level blades (78) and (79), wherein said flat blade (78) is reciprocatingly moving up and down, adjacent to the surface (84) which is located next to said opening (83).

20       • A button (80) which consists of a rectangular surface (82) wherein a rectangular part (81) is provided onto one side of it, bearing recessions (81a) on either side, through which it fastens to respective protrusions (78a,  
25       79a) under the central elevated part (77) of the plastic cover (76) and is built into it, wherein, on the other side of the rectangular surface (82), a pin (86) extends which is attached to a groove of the locking tongue  
30       (33),

• A locking tongue (33) which contains a surface with a groove (91) in the form of a fork with legs (91a, 91b) on either side, within which  
35       is introduced said pin (86) of the button (80) and a terminal hole (74) through which it is



connected off-centre so that it can rotate around a small shaft (72) of the main body of the internal handle (60),

5 A metallic or plastic cover (66) which contains a central elevated part (67) and same-level blades (68 and 69) on either side, wherein the locking tongue (33) seats into the cavity formed in the region of the elevated part (67), wherein the locking tongue (33) is  
10 nailed by means of a nail along the small shaft (72), as the nail passes through the openings (67a) of the elevated part (67) and wherein the same-level blades (68, 69) bear holes (68a, 69a) respectively for being nailed  
15 onto nails (70a, 71a) of the main body of the internal handle (60), and

A main body of external cover plug means (61) positioned into an opening of the profile (1), in the region of the chamber (5), exactly  
20 opposite the main body of said internal cover plug means, which comprises cylindrical tubes (63) on either side thereof with an internal spiral, whereat a pair of screws (64) is nailed, these screws passing through holes  
25 (62) of the main body of the internal cover plug means (60) where:

- Due to the reciprocation of the plastic cover (76), the button (80), built into the plastic cover (76) reciprocates; then the  
30 off-centre rotating locking tongue (33) is pushed via the bolt (86) which tracks the specially curved track of one of the grooves (91a, 91b), for performing a rotation of a certain arc length so as to  
35 protrude via the opening (32) into the

5 surface (59) in between the chamber (4) of the profile (1) where the hooking mechanism is installed and the chamber (5) of the profile (1) where the locking mechanism is installed, thereby engaging the hooking arm (24) of at least one oblong hook profile (21) via the coupling of the terminal immobilization arm (26) into said recession of the facing part.

- 10 10) Lock for sliding aluminium door/window panels according to the above claim 9, wherein said locking mechanism of said hooking arm (24) of at least one oblong hook profile (21) inside, respectively, at least one said suitably shaped recession of the facing
- 15 part may be similarly used for a sliding door/window panel that closes by moving to the left or to the right, wherein the only necessary modification is the attachment of said bolt (86) alternately, to the right or to the left specially curved groove track (91a,
- 20 91b) of the locking tongue (33) so that the direction of rotation along a certain length of arc that is performed by said locking tongue (33) is modified and wherein said only necessary modification can be effected with the overall locking mechanism assembled
- 25 by means of a slight, temporary lifting of said blade (78) of the plastic cover (76) so that this is temporarily supported by an elevated surface (85) relative to the surface (84) onto which said blade is effectively adjacent and in the proximity of it, so
- 30 that said bolt (86) is displaced from one leg of the pair of groove legs (91a, 91b) into which it has penetrated and tracing the top of the fork shaped groove (91) penetrates again into the other leg of the pair of groove legs (91a, 91b).

- 11) Lock for sliding aluminium door/window panels consisting of parallel walls (1a, 1b) which converge at one of their ends ending to grooves for the attachment of tightening brushes (7a, 7b) between which an opening (7) is defined and which converge at their other end ending to grooves for the attachment of elastic gaskets (8a, 8b) between which an opening (8) is defined wherein a glass panel (11) is applied and wherein the vertically extending part (3) of the frame profile (2) penetrates into said opening (7) when the sliding door/window panel shuts, characterized by that it contains in at least one of said walls (1a, 1b) at least one, vertically and at right angles to the walls extending, flat surface (29) with a terminal shaping either in the cylindrical shaft (31) shape for attachment inside a respective receiving recession (27a) of a similar diameter of said oblong hook profile (21) or a cylindrical receiving recession (31a) for accommodating a respective similar diameter cylindrical shaft (27b) of said oblong hook profile (21).
- 12) Frame profile (2) which contains at least one vertically extending part (3) which is arranged so that it penetrates into said opening (7) when a co-operating sliding door/window panel with profile (1) shuts according to the above claim 11, characterised by that said vertically extending part (3) bears a front terminal surface (30) with such shaping so that it defines a suitable automatic sliding and rotating process of said oblong hook profile (21) when said sliding/rotating arm (25) of the oblong hook profile (21) is adjacent to it, during the opening or shutting movement of the sliding door/window panel and by that said vertically protruding part (3) either bears a vertically extending groove (30a) between said terminal front surface (30) and the body of said part (3), wherein said groove (30a) is adapted so as

to receive said hooking arm (24) of one oblong hook profile (21) fitted into one of the parallel walls (1a, 1b) of the sliding door/window panel profile (1) in the case of one-sided locking or a pair of vertically extending grooves (30a, 30b) between said terminal frontal surface (30) and the body of said part (3), wherein said grooves (30a, 30b) respective receive said hooking arms (24) of a pair of oblong hook profiles (21) fitted onto opposite positions of each one of the parallel walls (1a, 1b) of the sliding door/window panel profile (1) in the case of two-sided locking.

13) Series of sliding door/window aluminium panels comprising a sliding door/window panel profile (1), a frame profile (2), a lock assembly with a discrete hooking mechanism of at least one automatically rotating oblong hook profile (21) and locking mechanism of said oblong hook profile (21) at a locked position according to any one of the above claims 1-12.